

THE SIGNIFICANCE OF NILES CANYON IN THE PHYTOGEOGRAPHY OF THE COAST RANGES OF CENTRAL CALIFORNIA

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INTRODUCTION

Purpose. The purpose of this report is to describe the flora which occur in the Niles Canyon area and to interpret from the observations the significance of the area in the phytogeography of the Coast Ranges of Central California.

Ninety native species which occur on Mount Diablo have not been reported from the Mount Hamilton Range. And at least 100 species of native plants which occur in the Mount Hamilton Range do not occur on Mount Diablo or in the North Coast Ranges. The nature of the barriers which have resulted in this distribution are not understood. Bowerman (1944, p. 71), points out that, ". . . speculation is unprofitable until the exact distribution of the various species in the intermediate areas has been determined in detail." Niles Canyon is one of these intermediate areas.

Because it forms a topographic break in the Diablo range, it has been suggested that Niles Canyon may also represent a physical barrier in the north-south distribution of plants. This could be determined by comparing the plants found in Niles Canyon with those found to the north and south. A barrier or "break" would be found to exist only if the vegetation to the north differed materially from that to the south.

Niles Canyon was chosen as an area for research in the hope it would contribute to understanding some of these problems in the phytogeography of the Coast Ranges.

Location and Topography. Niles Canyon lies within the Diablo Range and is approximately 25 miles south of the city of Oakland on the southeast side of the San Francisco Bay. The canyon connects the Sunol Valley (sometimes referred to as part of the Livermore Valley) with the coastal plain and forms a topographic break between two subdivisions of the Diablo Range, the Contra Costa Hills (sometimes called the Oakland or Berkeley Hills) to the north and the Mount Hamilton Range to the south.

Niles Canyon is approximately five miles long. At Sunol Valley the elevation is 200 feet. The average slope through Niles Canyon is 24 feet per mile (U.S. Army Corps of Engineers, 1961). The area discussed in this report extends to the top of the ridge on the south, an elevation of 1,200 feet and up the Walpert and Sunol Ridges on the north to an elevation of 1,400 feet (fig. 1).

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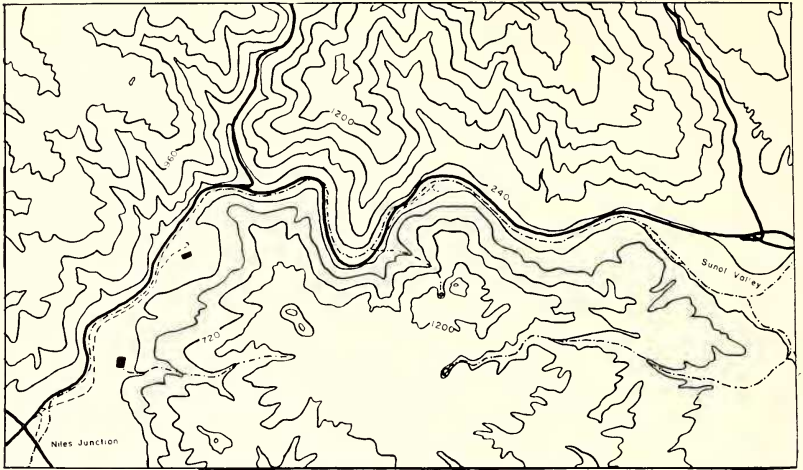


FIG. 1. Map of Niles Canyon.

Climate. Niles Canyon has a Mediterranean climate. Rain is concentrated in the winter months and the summers are dry. The major storms occur between December and March (U.S. Army Corps of Engineers, 1961). No temperature records for Niles Canyon are available, but it is the investigator's impression that the temperature extremes are less severe than those which occur in the Livermore Valley, where mean temperatures range from 32 to 55 degrees Fahrenheit during the winter months and from 70 to 100 degrees Fahrenheit during the summer months (Hall, 1958).

Geology. Most of the surface area in Niles Canyon is composed of Lower Cretaceous rocks, alternating sandstone, sandy shale, shale, and some conglomerate lenses for which the name "Niles Canyon formation" has been proposed (Hall, 1958). Niles Canyon has been selected as the type section because of accessibility and the excellent exposures which occur there. The thickest section has been measured in Niles Canyon. A 7,500 foot section lies between the eastern branch of the Mission fault and Stonybrook fault.

Recent alluvium covers the floor of the canyon at the western end. Recent terrace deposits occur above the present stream course in this same area.

The following account of the geologic history of the area is given by Hall (1958). During the Mesozoic, Franciscan rocks of Jurassic age were uplifted and deformed. This was followed by a time of erosion and deposition of the Lowest Cretaceous massive coarse Oakland conglomerate. With the wearing down of the terrain, the sediments became finer, and several thousand feet of strata of the Niles Canyon formation were de-

posited. During the Cenozoic, from the Eocene to the Upper Miocene, the seas transgressed and regressed several times as erosion, deposition, and uplift occurred. In the Late Miocene, nearby uplift caused the slow regression of the San Pablo seas. By the Late Pliocene, intense folding and faulting had occurred which destroyed the Pliocene basins, and resulted in tight or overturned folds. Faulting, erosion, and alluviation continue to the present. Headward growth of the stream valleys and canyon cutting are now the dominant processes.

The strike-slip faults in the Pleasanton area developed in response to north-south maximum stress (Hall, 1958). The Mission fault parallels the base of the hills that rise from the coastal plain. Two branches of the fault occur 3,250 feet and 4,750 feet northeast of the Niles Canyon-Mission Boulevard intersection. The trace of the Stonybrook fault follows the course of the stream in Stonybrook Canyon.

Drainage. Alameda Creek is the major stream which flows through Niles Canyon. It drains 695 square miles of the Coast Ranges. Alameda Creek arises in Santa Clara County at an elevation of 3,200 feet and flows northwesterly about 25 miles to enter Niles Canyon. It then flows westerly five miles to the west end of the canyon and discharges across the coastal plain into the bay. The principal tributaries are Calaveras Creek and San Antonio Creek, which flow from the south and join upstream from Sunol and Arroyo de la Laguna, which flows from the north and joins Alameda Creek near the head of Niles Canyon. The valley at the eastern end of the canyon was once a shallow lake bordered by marsh land. This was drained by deepening the outlet and constructing a channel across the old lake bed. The artesian wells which occurred on the drained lake bed were once an important source of water for the Spring Valley Water Company. Although the water table in this area has dropped, the Niles Canyon formation is still one of the area's most important aquifers.

Method of Investigation. The field work upon which this report is based was done between June of 1967 and May of 1970. Over 1000 collections of plants from the Niles Canyon area were made. These specimens have been mounted and are deposited in the Dudley Herbarium of Stanford University. Aerial photographs taken in 1968 and a topographic map of Niles Quadrangle (7½ minute series) were invaluable aids in carrying out this field work.

Initially, a card catalogue of the plants which occur north and south of Niles Canyon was assembled. The references used were Bowerman's *The Flowering Plants and Ferns of Mount Diablo, California* and Sharsmith's *Flora of the Mount Hamilton Range of California*. As plants were collected in Niles Canyon, the information was incorporated into the catalogue. Ultimately, it was possible to interpret from the observations the significance of Niles Canyon in the phytogeography of the Coast Ranges.

THE PLANT COMMUNITIES

The term "plant community" as used in this report is defined as a characteristic assemblage of plants. It is not to be confused with the term as used in an ecological sense nor as it is used by other writers. The four plant communities recognized in Niles Canyon are: a grassland community, a riparian community, an oak-woodland community, and a sagebrush community. Plants tolerant of greater environmental diversity may occur in more than one community, while less tolerant plants will be restricted to one.

The Grassland Community. Grasslands cover the crests of the hills and extend down the slopes on either side of the canyon. On the more mesophytic north-facing slopes, the grassland gives way to brush and oak-woodland. On the drier south-facing slopes, it may extend to the canyon bottom where it meets the riparian community or it may give way to patches of the sage community. These grasslands have been heavily grazed by sheep and cattle. This has favored the spread of introduced species at the expense of the native plants. The greatest number of species occurs in the grassland community.

A list follows: *Avena fatua*, *Briza minor*, *Bromus carinatus*, *B. mollis*, *B. rigidus*, *B. rubens*, *Festuca dertonensis*, *F. idahoensis*, *F. myuros*, *Hordeum vulgare*, *H. leporinum*, *Lolium multiflorum*, *Calochortus albus*, *Chlorogalum pomeridianum*, *Brassica geniculata*, *Capsella bursa-pastoris*, *Lepidium nitidum*, *Sisymbrium officinale*, *Lotus subpinnatus*, *L. purshianus*, *Lupinus bicolor*, *L. succulentus*, *Medicago sativa*, *Trifolium hirtum*, *T. incarnatum*, *T. subterraneum*, *T. tridentatum*, *Vicia sativa*, *Erodium botrys*, *E. circuitarium*, *E. moschatum*, *Geranium dissectum*, *G. molle*, *Sidalcea malvaeflora*, *Viola pedunculata*, *Camissonia ovata*, *Clarkia purpurea*, *C. unguiculata*, *Brodiaea congesta*, *B. laxa*, *B. pulchella*, *Muilla maritima*, *Sysyrinchium bellum*, *Eriogonum nudum*, *Rumex acetosella*, *Calandrinia ciliata*, *Montia perfoliata*, *Cerastium viscosum*, *Silene gallica*, *Stellaria media*, *Ranunculus californicus*, *Eschscholzia californica*, *Lomatium utriculatum*, *Sanicula bipinnata*, *S. bipinnatifida*, *Convolvulus arvensis*, *Amsinckia intermedia*, *A. menziesii*, *Plagiobothrys canescens*, *Collinsia heterophylla*, *Orthocarpus purpurascens*, *O. pusillus*, *Plantago erecta*, *Achyrrachaena mollis*, *Agoseris grandiflora*, *A. heterophylla*, *Carduus tenuiflorus*, *Centaurea melitensis*, *Hemizonia luzulifolia*, *Hypochaeris glabra*, *Lagophylla ramosissima*, *Madia sativa*, *Microseris douglasii*, *Silybum marianum*, *Wyethia angustifolia*, and *W. helenioides*.

The Riparian Community. Alameda Creek, which flows through Niles Canyon supports a highly developed riparian community. Many species are restricted to this perennial stream, but others, such as *Acer macrophyllum*, may extend far up the north-facing slopes. The character of

the vegetation changes along intermittent streams and gullies and is dependent upon the amount of water available throughout the year.

The trees and shrubs which occur in the riparian community are: *Populus fremontii*, *P. trichocarpa*, *Salix* ssp., *Alnus rhombifolia*, *Juglans hindsii*, *Plantanus racemosa*, *Ailanthus altissima*, *Acer negundo californicum*, *A. macrophyllum*, *Umbellularia californica*, *Schinus molle*, *Rhamnus californica*, *Rhus diversiloba*, *Aesculus californica*, *Sambucus mexicana*, *Vitis californica*, *Cornus glabrata*, *Buddleia davidii*, and *Nicotiana glauca*.

The herbaceous species include the following: *Equisetum hiemale* var. *affine*, *Typha angustifolia*, *T. domingensis*, *Echinochloa cruz-galli*, *Gastridium ventricosum*, *Paspalum distichum*, *Polypogon interruptus*, *Carex nudata*, *Cyperus eragrostis*, *Scirpus olneyi*, *S. microcarpus*, *Juncus* ssp., *Urtica holosericea*, *Polygonum lapathifolium*, *P. punctatum*, *Chenopodium ambrosioides*, *Clematis ligusticifolia*, *Rorippa nasturtium-aquaticum*, *Rubus procerus*, *Lotus strigosus*, *Melilotus albus*, *M. indica*, *Smilacina racemosa amplexicaulis*, *S. stellata sessifolia*, *Epilobium adenocaulon*, *Ludwigia peploides peploides*, *Berula erecta*, *Plantago major*, *Marah fabaceus*, *Aster exilis*, *Baccharis glutinosa*, *B. viminea*, *Solidago occidentalis*, *Vinca major*, *Cynoglossum grande*, *Lippia nodiflora rosea*, *Verbena lasiostachys*, *Stachys pycnantha*, *Solanum nodiflorum*, *Kickxia spuria*, *Mimulus pilosa*, *Cotula coronopifolia*, *Erigeron philadelphicus*, *Gnaphalium luteo-album*, *Helenium puberulum*, *Senecio mikanioides*, and *Xanthium strumarium*.

The Oak-Woodland Community. This community is characteristic of the nower north-facing slopes and is also present in the gullies and ravines of the south-facing slopes. *Quercus agrifolia* is the dominant tree of this community. Commonly associated with it is *Aesculus californica*. In the moister areas, *Umbellularia californica* is an important constituent. *Quercus lobata*, *Arbutus menziesii* and *Acer macrophyllum* are present in the dense woodland area which occurs on the north-facing slopes at the eastern end of the canyon.

The trees and shrubs of this community are: *Quercus agrifolia*, *Q. lobata*, *Umbellularia californica*, *Acer macrophyllum*, *Aesculus californica*, *Eucalyptus globulus*, *Arbutus menziesii*, *Lonicera hispidula*, *Holodiscus discolor*, *Osmaronia cersiformis*, *Rhamnus californica*, *Symphoricarpus albus laevigatus*, *S. mollis*, *Grossularia californica*, *Photinia arbutifolia*, *Rhus diversiloba*, and *Rosa gymnocarpa*.

The herbaceous species include the following: *Adiantum jordanii*, *Pellaea andromedifolia*, *Melica torreyana*, *Lithophragma affinis*, *L. heterophylla*, *Saxifraga californica*, *Fragaria californica*, *Bowlesia incana*, *Heraclium maximum*, *Sanicula crassicaulis*, *Dodecatheon hendersonii*, *Eucrypta chrysanthemifolia*, *Nemophila heterophylla*, *Phacelia nemoralis*, *Pholistoma auritum*, *Satureja douglasii*, *Solanum umbelliferum*, *Galium*

aparine, *G. nuttallii*, *Aster chilensis*, *Montia perfoliata*, *Ranunculus hebecarpus*, *Lathyrus vestitus puberulus*, *Achillea millefolium*, *Osmorrhiza chilensis*, *Polypodium californicum*, *Dryopteris arguta*, *Pteridium aquilinum pubescens*, *Chlorogalum pomeridianum*, *Fritillaria lanceolata*, and *Calochortus albus*.

The Sage Community. Patches of a sage community are present on the dry, rocky, south-facing slopes. *Artemisia californica* is the dominant plant in this community and in places forms almost pure stands. *Photinia arbutifolia* and *Diplacus aurantiacus* are common associates. In the gullies, *Quercus agrifolia* and *Umbellularia californica* may be present. *Eriodictyon californicum* is rare. Although closely related, the sage community is more open than that of the chaparral. The least number of species occurs in the sage community.

A list follows: *Artemisia californica*, *Photinia arbutifolia*, *Diplacus aurantiacus*, *Eriophyllum confertiflorum*, *Lotus scoparius*, *Eriogonum nudum*, *Mentzelia lindleyi*, *Quercus agrifolia*, *Umbellularia californica*, *Rhus diversiloba*, *Rhamnus californica*, *Eriodictyon californicum*, and *Zauschneria californica*.

CONTENT AND GEOGRAPHICAL RELATIONSHIPS OF THE FLORA

The vascular plants of Niles Canyon comprise 361 species. The following summary indicates their taxonomic position.

	Family	Genus	Total	Species	
				Native	Introduced
Pteridophyta	2	8	8	8	0
Monocotyledonae	7	36	63	37	26
Dicotyledonae	57	191	290	190	100
Totals	66	235	361	235	126

Twenty native species were collected in Niles Canyon which are reported from Mount Diablo but not from the Mount Hamilton Range.

A list follows: *Acer negundo californicum*, *Artemisia douglasiana*, *Berula erecta*, *Brickellia californica*, *Bromus laevipes*, *Clematis ligustifolia*, **Convolvulus occidentalis*, *Conyza canadensis*, **Equisetum hiemale affine*, *Fragaria californica*, *Clarkia purpurea viminea*, **Gnaphalium purpureum*, **G. microcephalum*, *Heracleum maximum*, **Lythrum californicum*, *Madia gracilis*, **Oenothera hookeri*, *Perideridia kelloggii*, *Pteridium aquilinum*, *Scirpus microcarpus*, and *Solanum nodiflorum*.

All except those with asterisks occur south of Alameda Creek. It should be noted that at least five of the six species which are restricted to the north side of Alameda Creek are sun loving plants which prefer a southern exposure and this fact possibly accounts for their not being collected on the north-facing slopes. Sharsmith (1945, p. 293) established Alameda Creek as the northern boundary for the Mount Hamilton Range. Therefore, at least those plants occurring south of Alameda Creek must be considered as belonging to the flora of Mount Hamilton.

The following is a list of the twenty-one native species collected in Niles Canyon that have been reported from the Mount Hamilton Range but not from Mount Diablo: *Amsinckia menziesii*, **Aster chilensis*, *Calochortus albus*, **Carex nudata*, **Castilleja affinis*, **Chrysopsis oregona*, *Corethrogyne filaginifolia*, *Distichlis spicata stricta*, *Heliotropium curvassavicum oculatum*, *Hemizonia pungens*, *Lotus strigosus*, **Mentzelia laevicaulis*, *M. lindleyi*, **Mimulus pilosa*, *Muilla maritima*, *Plagiobothrys canescens*, **Polystichum munitum*, *Populus trichocarpa*, **Salix melanopsis*, *Sidalcea malvaeflora*, **Stachys ajugoides*, **Verbena lasiostachys*, and **Wyethia angustifolia*.

Those with asterisks are species which Bowerman (1944, p. 71) indicates are to be expected on Mount Diablo. The remaining ten species must be considered in terms of their general distribution and the kinds of habitats they occupy to determine if Niles Canyon does indeed represent any sort of a break. Unless otherwise noted the habitats and ranges given will be those recorded by Munz (1959; 1968).

Amsinckia menziesii occurs occasionally in dry grassy areas away from the immediate coast from San Diego Co. to Washington, Idaho, and Utah. *Heliotropium curvassavicum oculatum* is common in saline or alkaline soils below 6,700 feet throughout California to Oregon, Utah, and Nevada. *Lotus strigosus* commonly occurs in dry disturbed places below 5,000 feet in many plant communities from Marin, Sutter, and Tuolumne counties south to Lower California. *Plagiobothrys canescens* is found on grassy slopes and flats below 4,500 feet from Siskiyou Co. south along the west base of the Sierras, the Central Valley, and the South Coast Ranges. *Populus trichocarpa* occurs along streams below 9,000 feet from San Diego Co. to Alaska and western Nevada. *Muilla maritima* is present in many plant communities from Glenn to San Diego counties. Niles Canyon does not appear to create a barrier to the north-south distribution of these six species. Mount Diablo affords the proper habitats and lies within the normal range of distribution. It is possible these species do occur on Mount Diablo and that their presence has been overlooked.

Corethrogyne filaginifolia is restricted to slopes below 1,000 feet and occurs most frequently along the coast. *Sidalcea malvaeflora* is another species commonly restricted to coastal areas. It has been observed on the northwest end of Shell Ridge although not on Mount Diablo proper (Bowerman, 1944, p. 70). Apparently these two species do not have a sufficiently broad range of climatic tolerance to allow them to reach as far inland as Mount Diablo.

Mentzelia lindleyi occurs in the Sage and Foothill-Woodland Communities of the South Coast Ranges from Alameda County to Santa Clara County and Stanislaus and Fresno counties. This species reaches its highest development in the Mount Hamilton Range, its type locality (Sharsmith 1945, p. 347). No specimens of *M. lindleyi* deposited in the Dudley Herbarium at Stanford University were collected from localities north of the Mount Hamilton Range. *Hemizonia pungens* occurs in the

interior dry valleys and foothills below 1,000 feet from the San Joaquin Valley to Kern County. It reaches its northern limit in the Mount Hamilton Range (Sharsmith 1945, p. 317). Niles Canyon is apparently the northernmost area reached by these two species.

To summarize: Twenty native species were collected in Niles Canyon that are reported from Mount Diablo but not from the Mount Hamilton Range. At least fourteen of these species must be considered as part of the Mount Hamilton flora. Twenty-one species of native plants were collected in Niles Canyon which also occur in the Mount Hamilton Range but are not reported on Mount Diablo. Eleven of these are expected to occur on Mount Diablo and six others could possibly occur there. Niles Canyon does not create a barrier to the north-south distribution of these species. Two species are restricted to more coastal areas and do not reach so far inland. *Hemizonia pungens* and *Mentzelia lindleyi* apparently reach the northern limit of their distribution in Niles Canyon, and are the only native species which occur to the south and not to the north of Niles Canyon. The vegetation to the north does not differ significantly from that to the south. Therefore, Niles Canyon does not represent a break in the phytogeography of the Coast Ranges of Central California.

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ANNOTATED CATALOGUE OF THE VASCULAR PLANTS

On the following pages is a list of the vascular plants which occur in Niles Canyon. The habitat or locality is given for each species. All the specimens upon which this study is based are deposited in the Dudley Herbarium at Stanford University. The references used in this case are Sharsmith's *Flora of the Mount Hamilton Range of California* (1945) and Bowerman's *The Flowering Plants and Ferns of Mount Diablo, California* (1944).

Care in making the determinations, was considered essential. Munz's *A California Flora* (1959; 1968) and Thomas' *Flora of the Santa Cruz Mountains* (1961) were the manuals most often consulted. These were supplemented by other floras and, occasionally, by monographs. In addition, herbarium specimens were consulted and in many cases the determinations were verified by other taxonomists.

EQUISETACEAE

Equisetum hiemale L. var. *affine* (Engelm.) Eaton. Occasional along banks of Alameda Creek.

POLYPODIACEAE

Adiantum jordanii Muell. Wooded shady slopes, all exposures.

Dryopteris arguta (Kaulf.) Watt. Common on wooded slopes.

Pellaea andromedifolia (Kaulf.) Fee. Oak-madrone forest, northern exposure.

Polypodium californicum Kaulf. A common fern of Niles Canyon growing in a variety of habitats, ranging from rocky banks to shaded canyon areas.

Polystichum munitum (Kaulf.) Presl. Moist shaded places, side canyons.

Pteridium aquilinum (L.) Kunh. var. *pubescens* Underw. Embankment between Niles Boulevard and Alameda Creek, north exposure.

Woodwardia fimbriata Smith. Shady side canyon, dry during the summer months.

TYPHACEAE

Typha angustifolia L. Occasionally in ditches where water collects and stands, banks of Alameda Creek where water is slow moving.

T. domingensis Pers. Banks of Alameda Creek where water is slow moving.

POACEAE

Agrostis avenaceae Gmel. Occasional in disturbed areas.

A. semiverticillata (Forsk.) Christ. Margins of Alameda Creek, and in ditches.

Avena fatua L. In grassland, disturbed areas, sometimes in open woodland, all exposures, frequent.

Briza minor L. Open grassy hillsides.

Bromus carinatus H. & A. Brush covered areas, and on grassy slopes.

B. laevipes Shear. Brush covered areas, mostly northern exposures.

B. mollis L. Common species of grassland, and roadsides, all exposures.

B. rigidus Roth. Grasslands, and disturbed areas, widespread.

B. rubens L. Disturbed areas, and on grassy slopes.

B. willdenowii Kunth. Along Alameda Creek, infrequent.

Cynodon dactylon (L.) Pers. Edges of streams and in disturbed habitats.

Distichlis spicata (L.) Green var. *stricta* (Torr.) Bettle. Alkaline areas.
Echinochloa cruz-galli (L.) Beauv. Along margins of Alameda Creek, and other moist areas.

Elymus glaucus Buckl. Frequent along streams, and on woody slopes.

E. triticoides Buckl. Moist and alkaline places.

Festuca dertonensis (All.) Aschers. & Graebn. Common grass of open slopes, and disturbed habitats, all exposures.

F. elmeri Scribn. & Merr. Wooded slopes.

F. idahoensis Elmer. Grasslands.

F. megalura L. Brush covered slopes, infrequent.

F. myuros L. Open slopes.

Gastridium ventricosum (Gouan) Schinz & Thell. Along stream bed, and probably in grasslands.

Hordeum leporinum Link. Occasional in grasslands, and in disturbed areas.

H. vulgare L. Grasslands, and disturbed areas.

Koeleria macrantha (Ledeb.) Spreng. North hillside, Sunol.

Lolium multiflorum Lam. A very common species of grasslands, and road sides.

L. temulentum L. var. *leptochaeton* A. Br. Road embankments, rare.

Melica californica Scribn. Rocky slopes, and to be expected elsewhere.

M. imperfecta Trin. Grassy slopes, and wooded hillsides, frequent.

M. torreyana Scribn. Wooded hillsides, mostly northerly exposure.

Paspalum distichum L. Margins of Alameda Creek, and in ditches.

Phalaris minor Retz. Occasional in disturbed areas.

Poa annua L. Occasional in grasslands, and more commonly in disturbed habitats.

P. scabrella (Thurb.) Benth. South facing grassy slopes, and probably elsewhere.

Polygonum interruptus HBK. Occasional along margins of Alameda Creek, and other moist places.

P. monspeliensis (L.) Desf. Common about the margins of Alameda Creek, in ditches, and other moist areas.

Pseudosasa japonica (Sieb. & Zucc.) Makino. Several clumps along Alameda Creek at Mission Boulevard, cut back at various times and still persisting.

Sorghum halepense (L.) Pers. Occasional in low, wet places.

S. sudanense (Piper) Stapf. Road embankments, escaped from cultivation as a pasture grass.

S. vulgare Pers. Grassy areas, escape from cultivation.

CYPERACEAE

Carex athrostachya Olney. Drainage ditch.

C. nudata Boott. Banks of Alameda Creek, frequent.

Cyperus eragrotis Lam. Common along the banks of Alameda Creek.

Scirpus microcarpus Presl. Occasional along the banks of Alameda Creek.

S. olneyi Gray. Infrequent along Alameda Creek.

JUNCACEAE

Juncus patens Meyer. Road embankments, north exposure, ditches where water collects and stands, shady side canyon, and grasslands.

J. xiphioides Meyer. Along streams, in ditches where water collects and stands, and at alkaline seeps.

Luzula multiflora (Retz.) Lejuene. Wooded slopes, north exposure.

LILIACEAE

Asparagus asparagoides Wight. Riparian community, escape from cultivation.

Calochortus albus (Benth.) Dougl. Common in Niles Canyon found in a variety of habitats, grassy or brush covered slopes, rocky banks, all exposures.

C. luteus Lindl. Collected at Sunol.

Chlorogalum pomeridianum (DC). Kunth. Widespread and tolerant of a wide range of conditions, in grasslands, brush-covered and rocky ground, even woodland, all exposures.

Fritillaria lanceolata Pursh. Brushy slopes of side canyon, infrequent, north exposure.

Smilacina racemosa (L.) Desf. var. *amplexicaulis* (Nutt.) Wats. Shady side canyon, north exposure, infrequent.

S. stellata (L.) Desf. var. *sessilifolia* (Baker) Henders. Shady side canyons, north exposure, both species often occurring together.

Trillium chloropetalum (Torr.) Howell var. *giganteum* (H. & A.) Munz. Under *Quercus agrifolia* at edge of grasslands, shady side canyon, north exposure, infrequent.

AMARYLLIDACEAE

Allium triquetrum L. Embankment between Old Niles Canyon Road and Alameda Creek.

Brodiaea congesta Smith. Grassy slopes, infrequent.

B. laxa (Benth.) Wats. Grassy slopes, occasional.

B. pulchella (Salisb.) Greene. Grassy slopes, the most common species of *Brodiaea* in Niles Canyon, all exposures.

Mulla maritima (Torr.) Wats. Grassy slopes, south exposure, infrequent.

IRIDACEAE

Sisyrinchium bellum Wats. A common plant of grasslands in Niles Canyon, and along roads and railroad tracks, all exposures.

SALICACEAE

Populus fremontii Wats. A common species of the riparian community throughout Niles Canyon.

P. trichocarpa T. & G. Occasional along Alameda Creek.

Salix hindsiana Benth. A fairly common species along Alameda Creek.

- S. laevigata* Bebb. Frequent along Alameda Creek.
S. lasiandra Benth. Occasional along Alameda Creek.
S. lasiolepis Benth. The most common species of willow in Niles Canyon, along stream margins and in side canyons.
S. melanopsis Nutt. Margins of Alameda Creek, infrequent.

BETULACEAE

- Alnus rhombifolia* Nutt. Occasional to abundant along Alameda Creek.

FAGACEAE

Quercus agrifolia Nee. The most common tree in Niles Canyon, occurring along Alameda Creek, along roads, on brush covered slopes, as single trees or in relatively pure stands, and in oak-madrone woodland, all exposures.

Q. lobata Nee. Occurring as individual trees, and in oak-madrone woodland. Restricted to eastern end of Niles Canyon.

JUGLANDACEAE

- Juglans hindsii* Jepson. Occasional tree of riparian community.

URTICEAE

Urtica holosericea Nutt. Along Alameda Creek, and side canyons where it remains moist all year.

U. urens L. Disturbed areas.

POLYGONACEAE

Eriogonum nudum Dougl. ex. Benth. Common plant of dry slopes, all exposures.

Polygonum aviculare L. Plant of disturbed areas.

P. lapathifolium L. Common along stream margins throughout Niles Canyon.

P. punctatum Ell. Stream margins of Alameda Creek.

Rumex acetosella L. Grasslands, all exposures.

R. conglomeratus Murr. Fairly common in low moist areas.

R. crispus L. Stream margins, and ditches.

R. pulcher L. Road embankment.

R. salicifolius Weinm. Along stream margins, and in ditches.

CHENOPODIACEAE

Atriplex patula L. ssp. *hastata* (L.) Hall & Clements. Stream margins, and in alkaline seep.

A. rosea L. Weed of disturbed areas.

Beta vulgaris L. Occasional in ditches.

Chenopodium ambrosioides L. var. *suffruticosum* (Willd.) Aellen. Fairly common along Alameda Creek.

C. murale L. Weed of disturbed places.

Salsola kali L. var. *tenuifolia* Tausch. Common weed of disturbed areas.

AMARANTHACEAE

Amaranthus albus L. A weed of disturbed areas.

A. retroflexus L. A weed of disturbed areas.

AIZOACEAE

Mesembryanthemum edule L. Naturalized in one area along Niles Boulevard.

M. floribundum Haw. Naturalized in one area along sand bag levee.

PORTULACACEAE

Calandrinia ciliata (R. & P.) DC. var. *menziesii* (Hook.) Macbr. Grasslands, fairly common.

Montia perfoliata (Willd.) Howell. Very common plant of moist habitats.

CARYOPHYLLACEAE

Cerastium viscosum L. Common on grassy slopes.

Silene gallica L. Common plant on grassy slopes.

Spergula arvensis L. Grasslands.

Stellaria media (L.) Cyr. A common weed of moist disturbed areas, and grassland.

RANUNCULACEAE

Clematis lasiantha Nutt. Brush covered slopes.

C. ligusticifolia Nutt. Common along banks of Alameda Creek.

Delphinium patens Benth. Edge of grasslands, north exposure.

Ranunculus californicus Benth. var. *californicus*. A common species of grasslands, open slopes, and shady canyon slopes.

R. hebecarpus H. & A. Oak woodland, north exposure.

R. muricatus L. In moist ravines, infrequent.

LAURACEAE

Umbellularia californica Nutt. A very common tree tolerant of a variety of habitats, along creek banks, in the open, in oak woodland.

PAPAVERACEAE

Eschscholzia californica Cham. Common on grassy slopes, road embankments, fields.

BRASSICACEAE

Brassica campestris L. Road embankments, and a common species of open fields, and slopes.

B. geniculata (Desf.) Ball. Road embankments, open slopes.

B. kaber (DC.) Wheeler. Weed of disturbed areas.

B. nigra Koch. Occasional in disturbed areas.

Capsella bursa-pastoris (L.) Medic. Open grassy slopes, and disturbed areas.

Cardamine oligosperma Nutt. Grassy slopes, and disturbed areas.

- Dentaria californica* Nutt. Shady slopes, common.
Lepidium nitidum Nutt. Grassy slopes.
L. strictum (Wats.) Rattan. Grassy slopes.
Raphanus sativus L. Along margins of streams, road embankments, open fields and grasslands.
Rorippa nasturtium-aquaticum (L.) Brit. & Rendle. Common along stream margins.
Sisymbrium officinale (L.) Scop. Common weed along road sides, and in grasslands.
Streptanthus glandulosus Hook. Dry south hillside at Sunol. Not reported from Mount Diablo.
Thelypodium lasiophyllum (H. & A.) Greene, north hillside at Sunol.
Thysanocarpus laciniatus Nutt. Brush covered slopes.

SAXIFRAGACEAE

- Grossularia californica* (H. & A.) Cov. & Britt. Open and partly woody slopes, north exposure.
Lithophragma affinis Gray. Moist slopes, north exposure.
L. heterophylla (H. & A.) T. & G. Moist slopes. This and the preceding species occurring together.
Saxifraga californica Greene. Rocky slopes, north exposure.

PLANTANACEAE

- Plantanus racemosa* Nutt. Fairly common along Alameda Creek.

ROSACEAE

- Cotoneaster pannosa* Franchet. Along road sides, and on brush covered slopes, infrequent.
Fragaria californica C. & S. Shady north facing slopes.
Holodiscus discolor (Pursh) Maxim. Shady wooded slopes, road embankments, north exposure mostly.
Osmaronia cerasiformis (T. & G. ex H. & A.) Greene. On wooded hillsides, and shady slopes, mostly north exposure.
Photinia arbutifolia (Ait.) Lindl. A very common shrub of Niles Canyon occurring on brush covered slopes, as member of the understory in oak-madrone woodland, and less commonly as isolated shrubs, all exposures.
Prunus amygdalus Batsch. Common along Alameda Creek, along road sides, and on open hillsides.
P. cerasifera Ehrh. Occasional on wooded north facing slopes.
Rosa californica C. & S. Along stream beds and gullies, and wooded hills.
R. gymnocarpa T. & G. Wooded, shady slopes, north exposure.
Rubus procerus Muell. ex Boulay. Common along stream banks, and road sides.
R. ursinus C. & S. Common along shady canyon bottom, and sometimes on shady north facing slopes.

FABACEAE

Cassia tomentosa L. Known from one station between Old Niles Canyon Road and Alameda Creek.

Cytissus monspessulanus L. Canyon bottom at western end.

Glycyrrhiza lepidota Pursh. var. *glutinosa* (Nutt.) Wats. Drainage ditches, and grassy flats.

Lathyrus jepsonii Greene ssp. *californicus* (Wats.) Hitchc. Infrequent along Alameda Creek.

Lathyrus vestitus Nutt. ssp. *puberulus* (Greene) Hitchc. The most common subspecies of *Lathyrus* in Niles Canyon; on brush covered slopes, road embankments, and wooded areas. Subspecies *L. v.* ssp. *bo-landerii* Wats is reported from Mount Hamilton and Mount Diablo.

Lotus purshianus (Benth.) Clem. & Clem. Along stream banks, and grassy slopes.

L. scoparius (Nutt.) Ottley. A common species of dry, open places.

L. strigosus (Nutt.) Greene. Stream banks.

L. subpinnatus Lag. Common in grasslands, and occasional on wooded slopes.

Lupinus albifrons Benth. A very common species of brush covered slopes, and road embankments.

L. bicolor Lind. Frequent in grasslands, commonly observed in disturbed areas.

L. densiflorus Benth. Quite common on grassy hillsides, in side canyons, and on road sides.

L. succulentus Koch. Grassy slopes.

Medicago arabica (L.) Huds. Grassy slopes.

M. polymorpha L. var. *vulgaris* (Benth.) Shinnery f. *vulgaris*. Grassy slopes, and disturbed areas.

M. polymorpha L. var. *vulgaris* (Benth.) Shinnery f. *tuberculata* (Gordon) Shinnery. Grassy slopes, and disturbed areas.

M. sativa L. Grassy slopes.

Melilotus albus Desr. ex Lam. Common along stream banks, and in disturbed areas.

M. indica (L.) All. Common along Alameda Creek, and in disturbed areas.

Trifolium hirtum All. Grasslands, and road sides.

T. incarnatum L. Grassy slopes.

T. subterraneum L. Grasslands.

T. tridentatum Lindl. Common clover of grassy slopes.

Vicia americana Willd. var. *oregana* (Nutt.) Nels. Brush covered areas. However, *V. americana* var. *trucata* Brew. has been reported by both Sharsmith and Bowerman.

V. dasycarpa Tenore. Occasional in disturbed areas.

V. sativa L. Frequent on grassy slopes, and in disturbed areas.

GERANIACEAE

Erodium botrys (Cav.) Bertol. Grassy slopes, very common.

E. circutarium (L.) L'Her. Grassy slopes, and disturbed areas, all exposures.

E. moschatum (L.) L'Her. Grasslands, and disturbed areas.

Geranium dissectum L. Canyon bottoms, common.

G. molle L. Canyon bottoms, grasslands.

OXALIDACEAE

Oxalis pes-caprae L. Common in disturbed areas.

O. pilosa Nutt. Grassy slopes, and road embankments.

ZYGOPHYLLACEAE

Tribulus terrestris L. Disturbed areas where the ground is hard packed.

SIMAROUBACEAE

Ailanthus altissima (Mill.) Swingle. A very common tree of the canyon bottom, especially at the western end of the canyon.

EUPHORBIACEAE

Eremocarpus setigerus (Hook.) Benth. Common plant of disturbed areas.

Euphorbia crenulata Engelm. Shady side canyon, infrequent.

E. lathyris L. Shady north facing slopes.

E. peplus L. Disturbed areas.

E. serpyllifolia Pers. Low areas where water has stood during the spring.

ANACARDIACEAE

Rhus diversiloba T. & G. Forming an understory in oak-madrone woodlands, often forming colonies in canyon bottoms, and also in grasslands, and on rocky slopes. Tolerant of a wide range of conditions.

Schinus molle. L. Common along canyon bottom.

ACERACEAE

Acer macrophyllum Pursh. An important tree of the riparian community, also on moist wooded slopes.

A. negundo L. var. *californicum* (T. & G.) Sarg. Occasional along the margins of Alameda Creek.

HIPPOCASTANACEAE

Aesculus californica (Spach) Nutt. Canyon bottoms, and wooded hill-sides, all exposures, but mostly north.

RHAMNACEAE

Rhamnus californica Esch. Brush covered slopes, and wooded areas, mostly north exposure.

VITACEAE

Vitis californica Benth. Clambering over ground, telephone poles, and other vegetation in canyon bottom and gullies, very common.

MALVACEAE

Lavatera cretica L. Common along road sides.

Malva nicaeensis All. Stream banks, and in disturbed areas.

M. parviflora L. grassy slopes.

Sida leprosa (Ort.) K. Schum. var. *hederacea* (Hook.) K. Schum. Occasional in alkaline soils.

Sidalcea malvaeflora (DC.) Benth. ssp. *laciniata* Hitchc. Occasional on grassy slopes.

VIOLACEAE

Viola pedunculata T. & G. Open grassy slopes.

LOASACEAE

Mentzelia laevicaulis (Dougl.) T. & G. Occasional on south facing slopes.

M. lindleyi T. & G. A very common species of dry south facing slopes, especially east of Palomares Road.

LYTHRACEAE

Lythrum californicum T. & G. In moist seepage area.

MYRTACEAE

Eucalyptus globulus Labill. Frequent along roads, and up side canyons, seedlings common.

ONAGRACEAE

Camissonia ovata (Nutt.) Raven. Common species of grasslands.

Clarkia concinna (F. & M.) Greene. North slope 2.5 miles west of Sunol.

C. purpurea (Curtis.) Nels. & Macbr. ssp. *viminea* (Dougl.) Lewis & Lewis. Grassy hillsides, north and west exposure.

C. unguiculata Lindl. The most common species of *Clarkia* in Niles Canyon. Brushy or grassy hillsides.

Epilobium adenocaulon Hausskn. var. *occidentale* Trel. Stream margins.

E. paniculatum Nutt. Stream banks, and grassy hillsides.

Ludwigia peploides (HBK.) Raven. ssp. *peploides*. Common in Alameda Creek.

Oenothera hookeri T. & G. Wet ground, south exposure, infrequent.

Zauschneria californica Presl. Dry hillsides and rocky banks, common, all exposures.

APIACEAE

Anthriscus scandicina (Weber) Mansf. Moist areas along stream banks.

Berula erecta (Huds.) Cov. At edges of Alameda Creek. Not reported from Mount Hamilton.

Bowlesia incana R. & P. In oak woodland, and probably elsewhere.

Conium maculatum L. Common along road sides.

Foeniculum vulgare Mill. Common in disturbed areas. Not reported from Mount Hamilton.

Heracleum maximum Bartr. Common on moist slopes, and wooded slopes.

Lomatium californicum (Nutt.) Math. & Const. On shaded slopes, north exposure.

L. utriculatum (Nutt.) C. & R. Grassy slopes, and edge of oak woodland.

Osmorhiza chilensis H. & A. In deep shade of side canyon, infrequent.

Perideridia kelloggii (Gray) Mathias. Occasional on brush covered slopes.

Sanicula bipinnata H. & A. Occasional on open grassy hillsides, all exposures.

S. bipinnatifida Dougl. Common on grassy slopes, all exposures.

S. crassicaulis Poepp. A frequent species of woodland areas, mostly northerly exposure.

Scandix pecten-veneris L. Moist areas.

Torilis nodosa (L.) Gaertn. Shady areas, and grassy slopes.

CORNACEAE

Cornus glabrata Benth. Collected at a branch of Alameda Creek, Sunol.

ERICACEAE

Arbutus menziesii Pursh. North facing wooded slopes at eastern sector of canyon in association with *Quercus*, *Umbellularia californica*, and *Holodiscus discolor*.

PRIMULACEAE

Anagallis arvensis L. Common in disturbed areas.

Dodecatheon hendersonii Gray. Wooded north facing slopes.

OLEACEAE

Olea europa L. Known from one station, a large grove probably cultivated in the past and still persisting.

LOGANIACEAE

Buddleia davidii Franchet. Common along road and banks of Alameda Creek.

APOCYNACEAE

Vinca major L. Common along banks of Alameda Creek.

ASCLEPIADACEAE

Asclepias fascicularis Decne. Dry slopes, and disturbed areas, all exposures.

CONVOLVULACEAE

Convolvulus arvensis L. Disturbed areas, a common weed of fields and grasslands.

C. occidentalis Gray. Very common on moist slopes and road embankments.

Cuscuta subinclusa Dur. & Hilg. Brush covered slopes, parasitic on *Rhus diversiloba*.

POLEMONIACEAE

Polemonium carneum Gray. Known from one specimen collected at summit in Stonybrook Canyon.

HYDROPHYLLACEAE

Eucrypta chrysanthemifolia (Benth.) Greene. Occasional in moist areas, mostly north exposure.

Eriodictyon californicum (H. & A.) Torr. Rare. Dry south facing slopes.

Nemophila heterophylla F. & M. Common woodland species, especially on shady north slopes, and in shady side canyons.

Phacelia imbricata Greene. Rocky slopes, and road embankments, frequent.

P. nemoralis Greene. The most common species of *Phacelia* in Niles Canyon, on wooded, shady slopes.

Pholistoma auritum (Lindl.) Lilja. Moist shady areas.

BORAGINACEAE

Allocarya bracteata Howell. Grasslands.

Amsinckia intermedia F. & M. Grassy slopes.

A. menziesii (Lehm.) Nels. & Macbr. Grasslands.

Cynoglossum grande Dougl. Shady side canyon, infrequent.

Heliotropium curassavicum L. var. *oculatum* (Heller) Tidestrom. Common plant of creek banks, and disturbed areas.

Plagiobothrys canescens Benth. Open grasslands, all exposures.

VERBENACEAE

Lippia nodiflora Michx. var. *rosea* (D. Don) Munz. Well established in moist areas along Alameda Creek.

Verbena lasiostachys Link. Fairly common along margins of Alameda Creek.

LAMIACEAE

Marrubium vulgare L. Common along road sides.

Melissa officinalis L. Shady slopes.

Monardella villosa Benth. Quite common on brush covered slopes, all exposures.

Satureja douglasii (Benth.) Brig. Shrubby areas, and oak woodland.

Stachy ajugoides Benth. Moist places. Not reported from Mount Diablo by Bowerman.

S. pycnantha Benth. Dry creek bed in Stonybrook Canyon.

S. rigida Benth. ssp. *quercetorum* (Heller) Epling. Very common species along road embankments, on brushy slopes, and open grassy areas, all exposures.

Trichostema lanceolatum Benth. Dry open fields.

SOLANACEAE

Nicotiana glauca Graham. Along Alameda Creek and road sides.

Solanum nodiflorum Jacq. A very common species of moist areas along Alameda Creek.

S. umbelliferum Esch. A common species of brush covered slopes.

SCROPHULARIACEAE

Antirrhinum majus L. Known from one station on south facing slope just east of bridge. This colony has persisted here for at least four years.

A. vexillo-calyculatum Kell. Dry open areas, mostly south exposure.

Castilleja affinis H. & A. Brush covered slopes and edge of oak woodland, mostly northerly exposure.

C. foliolosa H. & A. Rocky slopes.

C. wightii Elmer. A common species on west facing slopes in Stonybrook Canyon.

Collinsia heterophylla Grah. Shady, grassy slopes, mostly north exposure.

Cymbalaria muralis Gaertn., Mey. & Scherb. Growing in shade around concrete railroad abutment.

Diplacus aurantiacus Jepson. Common shrub of dry brushy or wooded hillsides, all exposures.

Kickxia spuria (L.) Dumort. Fairly common along banks of Alameda Creek.

Mimulus cardinalis Dougl. In side canyons, rare.

M. pilosa (Benth.) Greene. Occasional in dry stream beds.

Orthocarpus purpurascens Benth. Common species of grasslands, all exposures.

O. pusillus Benth. Common in grasslands.

Scrophularia californica C. & S. Common along Alameda Creek, and shrubby slopes.

Verbascum thapsus L. Disturbed habitats, especially common at the eastern end of the canyon.

Veronica persica Poir. Shady areas, grasslands, and road embankments.

PLANTAGINACEAE

Plantago erecta Morris. Grasslands.

P. lanceolata L. Road sides, and grassy areas.

P. major L. Moist areas along Alameda Creek.

RUBIACEAE

Galium aparine L. Brush covered slopes, and side canyons, mostly northerly exposure.

G. nuttallii Gray. Very common species inhabiting road embankments, brush covered slopes.

CAPRIFOLIACEAE

Lonicera hispidula Lindl. A common plant of wooded areas, north exposure.

Sambucus mexicana DC. Very common along road sides, and on brush covered slopes.

Symphoricarpos albus (L.) Blake var. *laevigatus* (Fern.) Blake. Along canyon bottoms, and on wooded hillsides, mostly northerly exposure.

S. mollis Nutt. Wooded or brushy hillsides, north exposure, common.

VALERIANACEAE

Centranthus ruber (L.) DC. Well established in disturbed areas, especially in western end of canyon.

CUCURBITACEAE

Marah fabaceus (Naud.) Greene. Common along Alameda Creek.

ASTERACEAE

Achillea millefolium L. var. *californica* (Pollard) Jeps. Open grassy slopes, and wooded hillsides, common, all exposures.

Achyrachaena mollis Schauer. Common on grassy slopes.

Ageris grandiflora (Nutt.) Greene. Common in grassland, and along road sides.

A. heterophylla (Nutt.) Greene. Grasslands.

Ambrosia pilostachya DC. Fairly common in low, moist places.

Anthemis cotula L. Open grassy hillsides.

Artemisia californica Less. Frequent on exposed slopes, occasional on brushy north facing slopes, mostly south exposure.

A. douglasiana Bess. Along stream bed, and occasionally on north facing slopes.

Aster chilensis Nees. Wooded or brush covered slopes.

A. exilis Ell. Alameda Creek at western end of canyon.

Baccharis douglasii DC. In moist seepage areas, occasional.

B. glutinosa Pers. Along banks of Alameda Creek.

B. pilularis DC. ssp. *consanguinea* (DC.) Kuntze. A very common shrub in Niles Canyon, often at the edges of woodland areas, along roads, and in disturbed areas.

B. viminea DC. Fairly common along the banks of Alameda Creek.

Brickellia californica T. & G. Occasional along stream margins, or dry ditches.

Calendula officinalis L. Known from one station along bank between road and creek at west end of canyon, an escape from cultivation which has persisted in this location for at least four years.

Carduus tenuiflorus Curt. A widespread plant of grasslands, road embankments, and disturbed areas.

Centaurea melitensis L. Common on grassy slopes, and in disturbed areas, all exposures.

- C. solstitialis* L. Occasional in disturbed areas.
- Chrysopsis oregona* (Nutt.) Gray var. *rudis* (Greene) Jeps. Occasional in dry flood plains.
- Cichorium intybus* L. Occasional along road sides.
- Cirsium vulgare* (Savi) Tenore. Grasslands, and disturbed areas, occasional.
- C. proteanum* Howell. Open slopes.
- Conyza bonariensis* (L.) Cronquist. Disturbed areas, and open slopes.
- C. canadensis* (L.) Cronquist. Common along Alameda Creek and roadsides.
- Corethrogyne flaginifolia* (H. & A.) Nutt. Frequent on open slopes.
- Cotula coronopifolia* L. Occasional along the banks of Alameda Creek.
- Erigeron philadelphicus* L. Infrequent along banks of Alameda Creek.
- Eriophyllum confertiflorum* Gray. Common along rocky slopes, and road embankments.
- Gnaphalium californicum* DC. Wooded hillsides, and dry, open banks, fairly common.
- G. luteo-album* L. Fairly common along banks of Alameda Creek.
- G. microcephalum* Nutt. Dry slopes and open places, south exposure.
- G. purpureum* L. Grassy slopes, south exposure, rare.
- Grindelia camporum* Greene. Dry slopes, and road embankments, all exposures.
- Helenium puberulum* DC. At the edges of stream beds.
- Hemizonia luzulifolia* DC. Common in grasslands.
- H. pungens* (H. & A.) T. & G. Open hillside.
- Heterotheca grandiflora* Nutt. Dry bank at east end of canyon, south exposure.
- Hypochaeris glabra* L. Open grasslands, all exposures.
- H. radicata* L. Grassy slopes.
- Lactuca saligna* L. Disturbed areas.
- L. serriola* L. Grasslands, and disturbed areas. A variant, *Lactuca serriola* L. f. *integrifolia* Bogenh. has been collected on the northeast side of the canyon, and on Mount Diablo.
- Lagophylla ramosissima* Nutt. Grasslands, occasional.
- Madia gracilis* (Smith) Keck. Grassy slopes, and moist banks along Alameda Creek.
- M. sativa* Molina. Grasslands.
- Matricaria matricarioides* (Less.) Porter. Grasslands, and to be expected elsewhere in disturbed habitats.
- Microseris douglasii* (DC.) Sch.-Bip. Grassy slopes.
- Picris echioides* L. Grassy slopes, and disturbed habitats, common.
- Rafinesquia californica* Nutt. On shady, brush covered slopes, mostly north exposure.
- Scolymus hispanicus* L. Known from hills just north of Niles Canyon, and suspected to be in range land. This plant is under state-wide eradication.

Senecio mikanioides Otto. A common plant of the stream bank vegetation.

S. vulgaris L. Disturbed areas and in grasslands.

Silybum marianum (L.) Gaertn. A common weed along road sides, and in overgrazed pasture land.

Solidago californica Nutt. Grasslands, and in moist gullies, all exposures.

S. occidentalis (Nutt.) T. & G. In moist places along Alameda Creek.

Sonchus asper L. Occasional in disturbed areas, and moist places.

S. oleraceus L. Common on grassy slopes, at edges of streams, and by road sides.

Stephanomeria virgata Benth. Open slopes, south exposure.

Taraxacum officinale Weber. Shady slopes, and in disturbed habitats.

Tragopogon dubius Scop. Flat grassy areas.

T. porrifolius L. Roadsides.

Wyethia angustifolia (DC.) Nutt. Grassy south facing slopes.

W. helenioides Nutt. Moist grassy slopes, mostly north exposure.

Xanthium strumarium L. Along Alameda Creek and other moist areas.

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NOTES AND NEWS

NOTEWORTHY RECORDS OF WESTERN PLANTS.—The following records are based upon plants deposited in the University of Idaho Herbarium. The collections were made by the author and others, as cited below. Some of these are new state records. For assistance in making critical determinations, appreciation is expressed to Rupert C. Barneby, David D. Keck, John Thomas Howell, and Jason R. Swallen.

Agrostis lepida Hitchc. Moist slopes near the summit of Lake Mountain (*Baker & Ruhle 483*); meadow at Upper Biglow Lake, Oregon Caves National Monument, Josephine Co., Oregon (*Baker & Ruhle 620*). This is apparently the first record of this species in Oregon. It ranges southward to southern California.